

CLAIMS

1. A method of converting an analog circuit from a source technology to a target technology, comprising:

- 5 receiving the analog circuit in the source technology;
 converting the analog circuit from the source technology to the target technology by analyzing the analog circuit at the device level and resizing the circuit at the device level based on the analysis; and
 outputting the analog circuit in the target technology.

10

2. The method of claim 1, wherein analyzing the analog circuit at the device level includes determining a mode of operation for a transistor in the circuit and the resizing of the transistor is based on the mode of operation.

- 15 3. The method of claim 1, wherein analyzing the analog circuit at the device level includes determining node voltages coupled to a device and the resizing of the device is based on the determined node voltages.

20 4. The method of claim 1, wherein analyzing the analog circuit at the device level includes:

- determining whether a first transistor is in an off mode;
 if the first transistor is not off, analyzing the first transistor;
 if the first transistor is off, analyzing a second transistor symmetrical to the first transistor and propagating the results of the symmetrical transistor to the first
25 transistor.

5. The method of claim 1, wherein analyzing the analog circuit at the device level includes analyzing individual electrical devices, which are one or more of the following types: transistors, resistors, and capacitors.

30

6. The method of claim 1, further including performing a dc simulation of the analog circuit in the source technology to determine electrical parameters of the

analog circuit and wherein the resizing is based on the determined electrical parameters.

7. The method of claim 1, identifying circuit blocks within the analog
5 circuit;
associating transistors with circuit blocks ; and
selecting a next transistor to resize based, in part, on the circuit block.

8. The method of claim 1, analyzing the analog circuit includes analyzing
10 node voltages coupled to a resistor and resizing the resistor based on the node voltages.

9. The method of claim 1, further including receiving, on a server computer,
a circuit description from a client computer over a distributed network, resizing the
15 description on the server computer, and returning the resized results to the client computer over the distributed network.

10. The method of claim 1, wherein the resizing of a transistor includes
checking that changes to the output conductance and parasitic capacitance of the
20 transistor remain within a certain accuracy limit .

11. A circuit retargeting system to convert an analog circuit from a source
technology to a target technology, comprising:
a design extraction engine that determines electrical parameters associated
25 with the analog circuit; and
a resizing engine coupled to the design extraction engine that resizes
individual devices within the analog circuit using the determined electrical
parameters to convert the analog circuit from the source technology to the target
technology.

30

12. The circuit retargeting system of claim 11, further including an
optimization engine coupled to the resizing engine, the optimization engine further

changing the resized analog circuit taking into account timing issues and constraints.

13. The circuit retargeting system of claim 11, further including a simulator
5 coupled to the design extraction engine used to obtain the electrical parameters, including voltage levels on nodes within the analog circuit.

14. The circuit retargeting system of claim 11, further including a source
technology parameter database and a target technology parameter database both
10 coupled to the resizing engine.

15. The circuit retargeting system of claim 11, further including a network
including a client computer coupled to a server computer and wherein the
retargeting system is distributed over the network.
15

16. The circuit retargeting system of claim 11, wherein the server computer
receives the analog circuit in the source technology, resizes the analog circuit to the
target technology, and sends the resized circuit to the client computer.

20 17. The circuit retargeting system of claim 11, wherein the circuit is
converted from the source technology to the target technology without any
performance evaluation of the overall circuit.

18. A circuit retargeting system to convert an analog circuit from a source
25 technology to a target technology, comprising:
means for receiving the analog circuit in the source technology;
means for converting the analog circuit from the source technology to the
target technology by analyzing the analog circuit at the device level and resizing the
circuit at the device level based on the analysis; and
30 means for outputting the analog circuit in the target technology.